





Anti Derivatives

day 63

$$\int x^n dx =$$

$$\frac{x^{(n+1)}}{(n+1)} + C$$

antiderivative

OR

"indefinite integral"

power rule

$$\frac{d}{dx} (x^n) =$$

1) multiply by exponent

2) subtract one from exponent

the function I want anti-differentiated

constant of integration

what's the variable, Jack?

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My brain hurts already...
but

CALC 1 - derivatives

CALC 2 - integrals

CALC 3 - multi-variable

DIFFERENTIAL EQ - use to solve

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$$\int \frac{1}{x} dx = \ln|x| + C$$

$$\int e^x dx = e^x + C \quad \int e^x dx = f(u^n)$$

$$\int \frac{1}{1+x^2} dx = \arctan x + C \text{ or } \tan^{-1}(x) + C$$

$$\int \frac{1}{\sqrt{1-x^2}} dx = \arcsin x + C \text{ or } \sin^{-1}(x) + C$$

$$\int \cos x dx = \sin x + C$$

$$\int \sin x dx = -\cos x + C$$

$$\int \tan x dx = \text{we don't know yet}$$

$$\int \sec x \tan x dx = \sec x + C$$

$$\int \sec^2 x dx = \int \frac{1}{\cos^2 x} dx = \tan x + C$$

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